CLAIMS

WHAT IS CLAIMED IS:

1. An apparatus for removing cuttings from a deviated wellbore comprising:

a drilling assembly connected to a non-rotating drill string and powered by a fluid that flows therethrough; and

means for diverting a portion of said fluid away from said drilling assembly and into said deviated wellbore while said drilling assembly drills said deviated wellbore.

2. The apparatus of claim 1 further including means for controlling the flow rate of said diverted fluid.

3. The apparatus of claim 2 wherein said controlling means is capable of adjusting the flow rate of said diverted fluid.

4. The apparatus of claim 1 further including means for dissipating the energy associated with said diverted fluid.

5. The apparatus of claim 1 further including at least one screen for limiting the size of solids flowing through said diverting means.

6. The apparatus of claim 1 further including a plug for preventing flow through said diverting means.

7. An apparatus for removing cuttings from a deviated wellbore being drilled using a non-rotating drill string, comprising:

a diverter that directs a fluid through a dissipater and into said deviated wellbore to remove cuttings while drilling of said wellbore progresses;

wherein said dissipater expends a pressure differential as said fluid flows therethrough.

8. The apparatus of claim 7 further including at least one screen for limiting the size of solids flowing into said diverter.

9. The apparatus of claim 7 further including a plug that prevents flow through said diverter.

10. The apparatus of claim 9 wherein said plug is disposed within a threaded sleeve.

11. The apparatus of claim 9 wherein said plug is secured in place by a snap ring.

12. The apparatus of claim 7 wherein said diverter comprises at least one port extending through a diverter wall.

13. The apparatus of claim 7 further including a controller for controlling the flow rate of said fluid.

14. The apparatus of claim 13 wherein said flow rate controller comprises one or more exchangeable nozzles.

15. The apparatus of claim 7 wherein said dissipater comprises at least one nozzle.

16. The apparatus of claim 15 wherein said nozzle includes a series of turns.

17. The apparatus of claim 15 wherein said nozzle includes a curved path having a continuous radius.

18. The apparatus of claim 15 wherein said nozzle includes a straight path having a substantially constant height.

19. The apparatus of claim 15 wherein said nozzle has a widening diameter.

20. The apparatus of claim 15 wherein said nozzle includes a straight path having a substantially constant width.

21. The apparatus of claim 15 wherein said nozzle is held in position by a snap ring.

22. The apparatus of claim 15 wherein said nozzle is threaded into position.

23. The apparatus of claim 15 wherein said nozzle is disposed within a threaded sleeve.

24. The apparatus of claim 15 wherein said nozzle is formed of a mold material.

25. The apparatus of claim 24 wherein said mold material is coated with a spray-on hardmetal.

26. The apparatus of claim 24 wherein said mold material is sand.

27. The apparatus of claim 24 wherein said mold material is glass.

28. The apparatus of claim 7 wherein said dissipater comprises a tortuous pathway.

29. The apparatus of claim 28 wherein the tortuosity of said pathway is determined by the pressure differential expended through said dissipater.

30. The apparatus of claim 28 wherein said tortuous pathway comprises a barrier cylinder.

31. The apparatus of claim 28 wherein said tortuous pathway comprises at least one baffle sleeve having obstructions disposed therein.

32. The apparatus of claim 31 wherein said at least one baffle sleeve is disposed at an angle.

33. The apparatus of claim 28 wherein said tortuous pathway comprises protrusions extending between a first housing and a second housing.

34. The apparatus of claim 33 further including at least one port between said tortuous pathway and said wellbore.

35. The apparatus of claim 33 wherein said protrusions extend from a wall of said first housing.

36. The apparatus of claim 33 wherein said protrusions extend from a wall of said second housing.

37. The apparatus of claim 33 wherein said protrusions are formed of a hardened material.

38. The apparatus of claim 37 wherein said hardened material is tungsten carbide.

39. The apparatus of claim 33 wherein said protrusions are formed of steel coated with a hardened material.

40. The apparatus of claim 33 wherein said protrusions are diamond-shaped.

41. The apparatus of claim 33 wherein said protrusions are circular.

42. The apparatus of claim 33 wherein said protrusions are square.

43. The apparatus of claim 33 wherein said protrusions are rectangular.

44. The apparatus of claim 33 wherein said protrusions are triangular.

45. The apparatus of claim 33 wherein said protrusions are bullet-shaped.

46. The apparatus of claim 33 wherein at least one of said housings is formed of a hardened material.

47. The apparatus of claim 46 wherein said hardened material is tungsten carbide.

48. The apparatus of claim 33 wherein at least one of said housings is formed of steel having a hardmetal coating.

49. The apparatus of claim 33 wherein at least one of said housings further includes a hardmetal sleeve.

50. The apparatus of claim 33 further including a positioning assembly for maintaining an axial position of said second housing with respect to said first housing and enabling rotational movement therebetween.

51. The apparatus of claim 33 wherein said protrusions comprise an intermeshed pattern having an adjustable flow area.

52. The apparatus of claim 51 further including one or more channels to allow the passage of solids through said intermeshed pattern.

53. The apparatus of claim 51 wherein said intermeshed pattern is formed by connecting said first housing and said second housing via a multi-lead thread.

54. The apparatus of claim 51 further including a flow adjusting assembly for enabling a measured change to said adjustable flow area.

55. The apparatus of claim 54 wherein said flow adjusting assembly comprises an upper adjusting sleeve, a lower adjusting sleeve, and an adjusting housing.

56. The apparatus of claim 55 wherein said upper adjusting sleeve forms a first multi-position connection with said second housing and a second multi-position connection with said lower adjusting sleeve; said first and second connections having a different number of positions.

57. The apparatus of claim 55 wherein said lower adjusting sleeve forms a connection with said adjusting housing that enables axial movement and prevents rotational movement therebetween.

58. A method for removing cuttings from a deviated wellbore comprising:

drilling the deviated wellbore using a drilling assembly connected to a non-rotating drill string, said drilling assembly powered by a fluid flowing therethrough; and

diverting a portion of the fluid away from the drilling assembly into the deviated wellbore at a flow rate corresponding to a velocity sufficient to remove cuttings while the drilling assembly drills the deviated wellbore.

59. The method of claim 58 further including adjusting the magnitude of the flow rate of the diverted fluid.

60. The method of claim 58 further including dissipating the energy of the diverted fluid.

61. The method of claim 58 wherein the diverting occurs near a connection between the drilling assembly and the coiled tubing.

62. The method of claim 58 wherein the diverting occurs continuously while drilling.

63. The method of claim 58 further including screening the portion of the fluid as it is diverted into the wellbore.

64. The apparatus of claim 1 further including a shiftable cylinder for allowing or preventing flow through said diverting means.

65. The apparatus of claim 7 further including a shiftable cylinder that allows or prevents flow through said diverter.

66. The apparatus of claim 65 further including a shiftable sleeve for protecting a seal when flow is allowed through said diverter.

67. The apparatus of claim 7 wherein said dissipater comprises a plurality of nozzles in series with a pressure drop chamber therebetween.

68. The apparatus of claim 7 further including an electronics housing.

69. The apparatus of claim 15 wherein said nozzle is formed of tungsten carbide.

70. A method for flow testing a diverter assembly having a flow bore and a diverter port comprising:

blocking the diverter port;

pumping a drilling fluid through the flow bore with the diverter port blocked;

measuring a first flow rate at a predetermined pressure drop of the drilling fluid through the diverter assembly;

opening the diverter port;

pumping drilling fluid through the flow bore with the diverter port open;

measuring a second flow rate at the predetermined pressure drop of the drilling fluid through the diverter assembly;

determining a diverted flow rate.

71. The method of claim 70 wherein blocking the diverter port comprises moving an outer cylinder to a first position with respect to an inner housing.

72. The method of claim 71 wherein opening the diverter port comprises moving the outer cylinder to a second position with respect to the inner housing.

73. The method of claim 71 further comprising moving a sleeve to expose a seal.

74. The method of claim 70 wherein all of the steps may be performed at the top of a well on a rig floor.

75. The method of claim 70 further comprising adjusting the diverted flow rate.